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CLAIMS

1.   An air sterilizer using ozone, wherein:

the air sterilizer operates in one or more modes of a standby (cleaning) mode, a deodorization mode and a sterilization mode, and

the air sterilizer comprises:

an ozone generating unit for generating the ozone in the deodorization or sterilization mode,

an ozone sensor for detecting the concentration of ozone in a target space, and

a control unit for controlling the operation of the ozone generating unit according to the concentration of ozone in the target space detected by the ozone sensor.

2.   The air sterilizer as claimed in claim 1, wherein the control unit controls the ozone generating unit such that the ozone is generated through switching operations of the ozone generating unit at a predetermined ON/OFF period and thus the concentration of ozone in the target space can reach a predetermined concentration of ozone for deodorization or sterilization.

3.   The air sterilizer as claimed in claim 2, wherein if the concentration of ozone detected by the ozone sensor exceeds a predetermined concentration, the control unit stops the operation of the ozone generating unit and performs control for change of the operating mode to the standby (cleaning) mode.

4.   The air sterilizer as claimed in claim 2, further comprising a logic circuit unit for calculating the size of the target space by calculating one or more of data on an operating time (T) of the ozone generating unit, an ON/OFF switching period (P) of the ozone generating unit and an ON time ratio (R) of the switching period (P), which are required for achieving the predetermined concentration of ozone for deodorization or sterilization.

5.   The air sterilizer as claimed in claim 4, further comprising a first memory means for storing the size of the target space and predetermined operating condition

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data corresponding to the size of the target space, wherein the control unit controls the operation of the ozone generating unit according to the operating condition data corresponding to the size of the target space by referencing the first memory means.

5   6.   The air sterilizer as claimed in claim 4, wherein if the operation of the ozone generating unit according to the operating condition data is completed, the control unit performs control for change of the operating mode to the standby (cleaning) mode.

7.   The air sterilizer as claimed in claim 4, wherein the logic circuit additionally
10   calculates data on a time T_P from start of the operation of the ozone generating unit to when the concentration of ozone detected by the ozone sensor reaches the predetermined concentration, and the control unit controls the ozone generating unit such that the ON time ratio (R) is decreased if a ratio of the operating time (T) and the time (T_P) is below a predetermined value.

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8.   The air sterilizer as claimed in claim 1, further comprising:
a human body sensor for detecting a human body existing in the target space, and
a logic circuit unit for calculating sensor signals generated from the human
20   body sensor and calculating data on the distance (D) from the human body sensor to the human body or data on the frequency (N) of detecting the human body in the target space.

9.   The air sterilizer as claimed in claim 8, wherein the logic circuit unit operates to
25   calculate the activity of human body (Y) by using the calculated data on the distance (D) and frequency (N), and the air sterilizer further comprises a second memory means for storing predetermined operating condition data corresponding to the calculated activity of human body (Y).

30   10.   The air sterilizer as claimed in claim 9, wherein the control unit controls the operation of the ozone generating unit according to the operating condition data corresponding to the activity of human body (Y) by referencing the second memory

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means.

11.   The air sterilizer as claimed in claim 5 or 10, wherein the operating condition data include one or more of data on the concentration of ozone (C) generated from the ozone generating unit, data on ozone generating duration (T_D) and data on an air volume (W).

12.   The air sterilizer as claimed in claim 9, wherein the activity of human body (Y) satisfies the following formula:

$$Y \cong \frac{D}{N} * 100,$$

where D is the distance to the human body and N is the frequency of detecting the human body.